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Approved For Release 2005/05/02 : CIA-RDP78B04770A002300030038-4

LEG:mb-35

Chief, Office of Naval Research
Department of the Navy
Washington 25, D. C.

Attention: Code 414, [REDACTED]

Subject: Contract [REDACTED]
Proposal for Extension of Perceptron Applicability
to Automatic Photo-Interpretation

Enclosure: (1) Technical Proposal
(2) Estimated Cost Breakdown
(3) Certificate of Current Pricing Data
(4) No-Contingent Fee Statement

Dear Sir:

As a result of our recent presentation at ONR on research to date under the subject contract and your invitation, we are pleased to submit a proposal for additional research effort on the applicability of perceptrons to photo interpretation. Our efforts to date have generally confirmed the validity of the system philosophy being planned and have provided evaluation of a number of techniques for accomplishing the various steps of object processing in an automatic system.

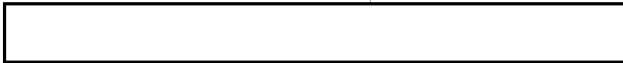
Our proposal for continuing effort under Contract [REDACTED] offers three alternate programs at varying levels of scope and funding. Briefly and for clarity, these program alternates are defined as follows:

- A. Optimum Program - to be performed in a 12-month period from date of authorization to proceed, and to include the following efforts:
- 1) Additional study of automatic photo interpretation concepts, utilizing the IBM 704 computer including:
 - (a) Further investigation of techniques for object detection.
 - (b) Additional recognition experiments using actual photographic material.

Declass Review by NGA.

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- (c) Investigation of techniques for improving recognition capability.
- 2) Study of implementation techniques for:
 - (a) Computations which use the same arithmetic process at every element in the picture - data independent techniques.
 - (b) Computational processes which require exploration and dynamic decision - data independent techniques.
 - (c) Recognition processes and over-all system integration.
- B. Modest Program - to be performed in a 12-month period from date of authorization to proceed, and to include only the following elements of the optimum program in (A) above:
 - Items 1(a), 1(b), 2(a), plus limited effort in 1(c).
- C. Minimum Program - to be performed in a 6-month period from date of authorization to proceed, and to include only the following elements of the optimum program in (A) above:
 - Item 1(b) plus limited effort in 1(a).

Valuable support to the implementation studies under the modest and optimum programs would be afforded by a flying spot scanner to be provided as a Laboratory owned asset. Further discussion of the proposed program and alternates, including material on facilities, personnel, and related projects, along with appendices of published papers, is contained in enclosure (1), Technical Proposal.

We estimate the cost of these programs including fee as follows:

Optimum program
Modest program
Minimum program



A detailed cost breakdown appropriate to each may be found in enclosure (2). Throughout the performance period, we would continue to furnish those reports presently required by Contract  including a final report at completion of effort.

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As authorization for one of the above programs to be selected, we would accept an amendment to Contract [Redacted] which adds the necessary funding and extends the performance period consistent with the program selected. At the present time, we are performing a limited effort under this contract pending contractual coverage for the no-cost time extension requested in our letter of 30 November 1962 (LEG:mb-861). In this connection, we understand that ONR proposes to extend the Contract at no cost for 6 months rather than 3 months requested by our letter, to allow sufficient time for contract action on this proposal for a funded program. A six month no-cost time extension would be acceptable to us, although we believe it would be most advantageous to ONR and to the continuity of technical effort to fund the selected program at the earliest possible date.

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A no-contingent fee statement and a certificate of current pricing data are included in enclosures (3) and (4).

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For further technical information, please communicate [Redacted] Computer Research Department. Contractual matters will be handled by [Redacted] Contracts Department.

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Very truly yours,

[Redacted Signature]

Contract Manager

cc: Chief, ONR, Washington 25, D. C.

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[Redacted]
Contracts Division

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BuWepsRep, [Redacted]

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(2) The armed services in general are not aware of this potential problem area; consequently, their R&D units are hard pressed to justify support of development in this realm.

(3) The original development of the PERCEPTOR in 1958 has stimulated development of similar cognitive systems throughout the electronics industry. Most of these developments are highly specialized and somewhat premature, but some appear to be nearing a practical hardware stage for simple recognition tasks.

(4) The PERCEPTOR related developments show more promise of automating the P.I. process than the purely digital mathematical techniques.

(5) [] has the most extensive experience in this field. Six years have been spent in general research. Most of the related systems in existence today have been investigated and evaluated by [] 25X1
The subject proposal indicates that [] scientists now believe that research 25X1
may be directed toward specific applications.

3. CONCLUSIONS:

a. There is genuine cause to be concerned about the future problem of utilizing photographically recorded intelligence at the same rate it is acquired.

b. Automation is the most logical solution to this problem.

c. Developments in this realm to date indicate that the first practical application of such automation is still several years away.

d. The experience, competence and state of development in this science at the [] justifies continued support of their research.

4. RECOMMENDATIONS:

a. [] be awarded a CPTF contract in accordance with their contract proposal and covering letter, dated 14 January 1963, for [] to cover the cost of the Modest Program, item B.

b. Arrangements be made to maintain this development at an unclassified level.

[]

Development Branch, P&DS

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CERTIFICATE OF CURRENT COST OR PRICING DATA

I hereby certify that, to the best of my knowledge and belief, the data ~~xxxxxxxxxxxxxxxx~~ submitted in support of [] 14 January 1963 [] proposal letter and estimates dated 14 January 1963 (LEG:mb-35) for extension of research under Contract []

and submitted to the Contracting Officer or his representative; all significant changes in the above data which occurred since the aforementioned date through

14th of January 1963
(Day) (Month) (Year)

have been similarly submitted; and no more recent significant change in such data was known to the undersigned at the time of executing this certificate; and all of the data submitted are accurate.

25X1

Date January 14, 1963

NO-CONTINGENT FEE STATEMENT

This Laboratory represents that it has not employed or retained any company or person (other than a full-time bona fide employee working solely for this Laboratory) to solicit or secure this contract and that it has not paid or agreed to pay to any company or person (other than a full-time bona fide employee working solely for this Laboratory) any fee, commission, percentage or brokerage fee, contingent upon or resulting from the award of this contract; and agrees to furnish information relating thereto as requested by the Contracting Officer. (Note: For interpretation of the representation, including the term "bona fide employee", see General Services Administration Regulation, Title 44, secs. 150.7 and 150.5 (d) Fed. Reg. Dec. 31, 1952, Vol. 17, No. 253.)

This Laboratory further represents that it currently employs over 500 full-time employees.

By _____

Assistant Secretary

Dated _____